Drug Therapy Protocols: Oxygen

<table>
<thead>
<tr>
<th>Policy code</th>
<th>DTP_OXYG_0722</th>
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<tr>
<td>Date</td>
<td>July, 2022</td>
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<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to oxygen administration.</td>
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<td>Scope</td>
<td>Applies to all Queensland Ambulance Service (QAS) clinical staff.</td>
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<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
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<tr>
<td>Population</td>
<td>Applies to all ages unless specifically mentioned.</td>
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<tr>
<td>Source of funding</td>
<td>Internal – 100%</td>
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<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
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<td>Review date</td>
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## Oxygen

### Drug class
Gas

### Pharmacology
A colourless, odourless gas essential for the production of cellular energy.

### Metabolism
N/A.

### Indications
- A wide range of conditions resulting in, or potentially resulting in systematic AND/OR localised hypoxia.

### Contraindications
- Known paraquat poisoning with SpO₂ equal to or greater than 88%
- History of bleomycin therapy with SpO₂ equal to or greater than 88%

### Precautions
- Patients with paraquat poisoning or bleomycin lung injury may be harmed by supplemental oxygen. Avoid oxygen unless the patient is hypoxaemic – target 88–92%.[1]
- Prolonged administration to premature neonates.
- Newly born infants will have low SpO₂ for the first 10 minutes following birth – refer to CPG: Resuscitation – Newly born.
- Patients with cyanotic heart disease may have saturation targets between 75% to 85%. Clinicians should attempt to ascertain optimal target saturation levels for these patients from carers or health professional.
- A BVM will not supply adequate oxygen unless IPPV is provided.
- The use of high flow oxygen in an attempt to protect against subsequent hypoxaemia in the event of deterioration has the potential to delay the recognition of such a deterioration. This may provide a false reassurance that the patient is stable.

### Side effects
- Hypoventilation in some COPD patients with hypoxic drive.
- Drying of airway mucous membranes
Presentation

- Size C Cylinder, 450 L medical oxygen
- Size D Cylinder, 1600 L medical oxygen

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<thead>
<tr>
<th>Onset</th>
<th>Duration</th>
<th>Half-life</th>
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<tr>
<td>Immediate</td>
<td>N/A</td>
<td>N/A</td>
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Schedule

- Unscheduled.

Routes of administration

**Inhalation (INH)**
- Nasal cannulae (NC)
- Nebuliser mask (NEB)
- Simple face mask (SFM)
- Non-rebreather reservoir mask (NRBM)
- Bag-valve mask (BVM)
- Supraglottic airway device (SAD)
- Endotracheal tube (ETT)
- Continuous Positive Airway Pressure (CPAP)

Special notes

- The administration of oxygen to correct hypoxaemia is evidence based, severe hypoxaemia is harmful. The provision of supratherapeutic amounts of oxygen in a number of conditions including reversible cardiac ischaemia have been associated with poorer outcomes.
- Diving accidents are **NOT** covered by this DTP – officers must administer high flow oxygen.
- QAS oxygen saturation monitors are unable to differentiate between carboxyhaemoglobin and oxyhaemoglobin, therefore patients with carbon monoxide poisoning must be administered the maximum oxygen dose irrespective of SpO2 readings.
- For patients with COPD, nebulised salbutamol must be delivered via nebuliser mask at a rate of 6 L/minute. For all other patients 8 L/minute is appropriate for nebulising drugs.
- The FiO2 levels delivered by the different delivery systems may vary considerably between patients and be influenced by a number of factors, including respiratory rate and whether the patient's mouth is open or closed.
Oxygen

Adult/Paediatric dosages

- Intra-arrest
- CO poisoning
- Cyanide poisoning
- Preoxygenation for RSI

**INH**  Administer 100% O₂

- Paraquat toxicity
- Bleomycin treatment
- Obesity
- COPD
- Cystic fibrosis
- Neuromuscular disease

**INH**  Titrate oxygen to achieve SpO₂ 88–92%

All other presentations NOT listed above

**INH**  Titrate oxygen to achieve SpO₂ 92–96%